



Pepper's Ghost Illusion

Kit contains:

- 1 piece of transparency film
- 1 piece of die-cut cardboard
- 1 section of black shower curtain
- 1 strip of black paper

You will need: scissors, clear tape, a pencil, and a smartphone. (Ask your grown-up's permission if you think you need it!)



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INSTRUCTIONS

In this project, you are combining science with a magician's staging to create an illusion.

Step 1. Create a covering to hide the smartphone while playing a small-sized video. Place the cardboard piece on top of the black plastic such that the rectangular window is in the center, about 1/3 of the way down. Trace the rectangle with a pencil. Cut it out.



Step 2. Fold the die-cut cardboard into an open-sided box. Tape down the tab to the outside.

Step 3. Cut out the transparent rectangle. Place it diagonally in the box with one end starting at the outside of a skinny cardboard strip. Tape in place, covering as little of the plastic as possible.



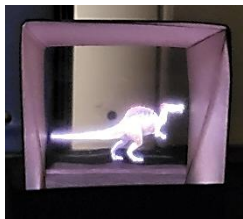
Step 4. Configure the smartphone! Turn the brightness all the way up. Play a video with a black background in the small-sized viewer. Ideas:

- Friendly ghost: <https://youtu.be/3yjs5Y5Hqil>
- Spinosaurus: https://youtu.be/-r_bbTqACjw
- Dancing guys: https://youtu.be/_pWU8kGbmt4

Step 5. Place your device, window facing down, on top of the video. Do you see the picture floating in the air? If not, rotate your device 180°. For best results, view against a dark-colored backdrop or in a dark room.

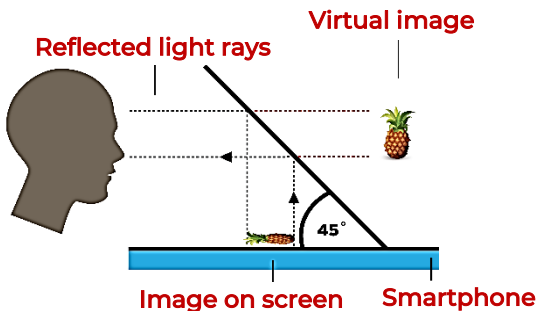


Step 6. Make the illusion more amazing with some clever trickery. Hide your phone with the covering you created in step 1. Bend the strip of black paper around the base of your viewer to hide the video.



WHAT'S GOING ON?

The clear angled surface on your device creates a variation on the **Pepper's Ghost** optical illusion, invented by John Henry Pepper in the 19th century, which he based on an earlier process by Italian scientist Giambattista della Porta in 1584. Special effects were always cool! The Pepper's Ghost technique combines lighting with angled glass to project a false version of a real or recorded image to astonish audiences (i.e., "Look, it's a ghost!"). This trick has been used in theaters, haunted houses, and amusement parks ever since. Your version:



Learn more about how Pepper's Ghost works with the video, "DIY Hacks & How To's: Pepper's Ghost":

<https://youtu.be/TcqyoYfHIFM>

Source: <http://scih.org/john-henry-pepper-peppers-ghost/>